



09/22/00

Attorney's Docket No.: U 012959-5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Box Patent Application
Assistant Commissioner for Patents
Washington, D.C. 20231



00140

PATENT TRADEMARK OFFICE

NEW APPLICATION TRANSMITTAL

Transmitted herewith for filing is the patent application of Inventors:

1. LEONID ALEXEEVICH **POLYAKOV**
2. ALEXEI NIKOLAEVICH **TATARINOV**
3. JURY ALEXANDROVICH **MONASTYREV**
4. SEGEI GEORGIEVICH **OGORODNIKOV**

WARNING: The Declaration must name all of the actual inventor(s).

For (title):

METHOD OF SEPARATION OF PALLADIUM ISOTOPES IN ELECTROMAGNETIC SEPARATOR
USING A SOURCE OF IONS

1. Type of Application

This new application is for a(n) (check one applicable item below):

- ☒ Original (nonprovisional)
☐ Design
☐ Plant

WARNING: Do not use this transmittal for a completion in the U.S. of an International Application under 35 U.S.C. 371(c)(4) unless the International Application is being filed as a divisional, continuation or continuation-in-part application.

CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that this New Application Transmittal and the documents referred to as enclosed therein are being deposited with the United States Postal Service on this date **SEPTEMBER 22, 2000** in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number **EL699731645US** addressed to the: Assistant Commissioner of Patents, Washington, D.C. 20231

IBIS CARRILLO

(Type or print name of person mailing paper)

(Signature of person mailing paper)

NOTE: Each paper or fee referred to as enclosed herein has the number of the "Express Mail" mailing label placed thereon prior to mailing. 37 CFR 1.10(b).

WARNING: Certificate of mailing (first class) or facsimile transmission procedures of 37 CFR 1.8 cannot be used to obtain a date of mailing or transmission for this correspondence.

WARNING: Do not use this transmittal for the filing of a provisional application.

2. Benefit of Prior U.S. Application(s) (35 U.S.C. 119(e), 120, or 121)

NOTE: If the new application being transmitted is a divisional, continuation or a continuation-in-part of a parent case, or where the parent case is an International Application which designated the U.S., or benefit of a prior provisional application is claimed, then check the following item and complete and attach **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED**.

WARNING: If an application claims the benefit of the filing date of an earlier filed application under 35 U.S.C. 120, 121 or 365(c), the 20-year term of that application will be based upon the filing date of the earliest U.S. application that the application makes reference to under 35 U.S.C. 120, 121 or 365(c). (35 U.S.C. 154(a)(2) does not take into account, for the determination of the patent term, any application on which priority is claimed under 35 U.S.C. 119, 365(a) or 365(b).) For a c-i-p application, applicant should review whether any claim in the patent that will issue is supported by an earlier application and, if not, the applicant should consider canceling the reference to the earlier filed application. The term of a patent is not based on a claim-by-claim approach. See Notice of April 14, 1995, 60 Fed. Reg. 20,195, at 20,205.

WARNING: When the last day of pendency of a provisional application falls on a Saturday, Sunday, or Federal holiday within the District of Columbia, any nonprovisional application claiming benefit of the provisional **must** be filed prior to the Saturday, Sunday or Federal holiday within the District of Columbia. See 37 C.F.R. § 1.78(a)(3).

- ☐ The new application being transmitted claims the benefit of prior U.S. application(s) and enclosed are **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED**.

NOTE: If one of the following 3 items apply, then complete and attach **ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF A PRIOR U.S. APPLICATION CLAIMED** and a **NOTIFICATION IN PARENT APPLICATION OF THE FILING OF THIS CONTINUATION APPLICATION**.

- ☐ Divisional.
☐ Continuation.
☐ Continuation-in-Part (C-I-P).

3. Papers Enclosed That Are Required For Filing Date Under 37 CFR 1.53 (Regular) or 37 CFR 1.153 (Design) Application

- 7 Pages of specification (pages 2 thru 8)
 1 Pages of claims
 1 Pages of Abstract
 Sheets of drawing
☐ formal
☐ informal

WARNING: **DO NOT** submit original drawings. A high quality copy of the drawings should be supplied when filing a patent application. The drawings that are submitted to the Office must be on strong, white, smooth, and non-shiny paper and meet the standards according to § 1.84. If corrections to the drawings are necessary, they should be made to the original drawing and a high-quality copy of the corrected original drawing then submitted to the Office. Only one copy is required or desired. Comments on proposed new 37 CFR 1.84. Notice of March 9, 1988 (1990 O.G. 57-62).

NOTE: "Identifying indicia, if provided, should include the application number or the title of the invention, inventor's name, docket number (if any), and the name and telephone number of a person to call if the Office is unable to match the drawings to the proper application. This information should be placed on the back of each sheet of drawing a minimum distance of 1.5 cm. (5/8 inch) down from the top of the page." 37 C.F.R. 1.84(c).

(complete the following, if applicable)

- ☐ The enclosed drawing(s) are photograph(s), and there is also attached a "PETITION TO ACCEPT PHOTOGRAPH(S) AS DRAWING(S)". 37 C.F.R. 1.84(b).

4. Additional papers enclosed

- ☐ Preliminary Amendment
- ☐ Information Disclosure Statement (37 CFR 1.98)
- ☐ Form PTO-1449
- ☐ Citations
- ☐ Declaration of Biological Deposit
- ☐ Submission of "Sequence Listing," computer readable copy and/or amendment pertaining thereto for biotechnology invention containing nucleotide and/or amino acid sequence.
- ☐ Authorization of Attorney(s) to Accept and Follow Instructions from Representative
- ☐ Special Comments
- ☐ Other

5. Declaration or oath

- ☒ Enclosed
- executed by (*check all applicable boxes*)
- ☒ inventors.
- ☐ legal representative of inventors. 37 CFR 1.42 or 1.43
- ☐ joint inventor or person showing a proprietary interest on behalf of inventor who refused to sign or cannot be reached.
- ☐ This is the petition required by 37 CFR 1.47 and the statement required by 37 CFR 1.47 is also attached. *See item 13 below for fee.*
- ☐ Not Enclosed.

WARNING: *Where the filing is a completion in the U.S. of an International Application but where a declaration is not available or where the completion of the U.S. application contains subject matter in addition to the International Application the application may be treated as a continuation or continuation-in-part, as the case may be, utilizing ADDED PAGE FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION CLAIMED.*

- ☐ Application is made by a person authorized under 37 CFR 1.41(c) on behalf of *all the above named inventors*. (The declaration or oath, along with the surcharge required by 37 CFR 1.16(e) can be filed subsequently).

NOTE: *It is important that all the correct inventor(s) are named for filing under 37 CFR 1.41(c) and 1.53(b).*

- ☐ Showing that the filing is authorized. (*Not required unless called into question. 37 CFR 1.41(d).*)

6. Inventorship Statement

WARNING: *If the named inventors are each not the inventors of all the claims an explanation, including the ownership of the various claims at the time the last claimed invention was made, should be submitted.*

The inventorship for all the claims in this application are:

- ☐ The same
- ☐ Not the same. An explanation, including the ownership of the various claims at the time the last claimed invention was made,

7. Language

NOTE: An application including a signed oath or declaration may be filed in a language other than English. A verified English translation of the non-English language application and the processing fee of \$130.00 required by 37 CFR 1.17(k) is required to be filed with the application or within such time as may be set by the Office. 37 CFR 1.52(d).

NOTE: A non-English oath or declaration in the form provided or approved by the PTO need not be translated. 37 CFR 1.69(b).

- ☒ English
☐ non-English
☐ the attached translation is a verified translation. 37 CFR 1.52(d).

8. Assignment

- ☒ An assignment of the invention to KOMBINAT "ELEKTROKHIMPRIBOR"
☒ is attached. A separate ☒ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.
☐ will follow.

NOTE: "If an assignment is submitted with a new application, send two separate letters—one for the application and one for the assignment." Notice of May 4, 1990 (1114 O.G. 77-78).

WARNING: A newly executed "CERTIFICATE UNDER 37 CFR 3.73(b)" must be filed when a continuation-in-part application is filed by an assignee. Notice of April 30, 1993. 1150 O.G. 62-64.

9. Certified Copy

Certified copy of application

Country	Appln. No.	Filed
Russia	99125195	November 29, 1999

from which priority is claimed

- ☐ is attached.
☒ will follow.

NOTE: The foreign application forming the basis for the claim for priority must be referred to in the oath or declaration. 37 CFR 1.55(a) and 1.63.

NOTE: This item is for any foreign priority for which the application being filed directly relates. If any parent U.S. application or International Application from which this application claims benefit under 35 U.S.C. 120 is itself entitled to priority from a prior foreign application then complete item 18 on the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED.

10. Fee Calculation (37 CFR 1.16)

- A. ☒ Regular Application

Claims as Filed

Number Filed	Number Extra	Rate	Basic Fee 37 CFR 1.16(a) \$690.00
Total Claims (37 CFR 1.16(c))	1 - 20 = 0 x \$	18.00	
Independent Claims (37 CFR 1.16(b))	1 - 3 = 0 x \$	78.00	
Multiple dependent claim(s), if any (37 CFR 1.16(d))	+ \$	260.00	

- ☐ Amendment cancelling extra claims enclosed.
- ☐ Amendment deleting multiple-dependencies enclosed.
- ☐ Fee for extra claims is not being paid at this time.

NOTE: *If the fees for extra claims are not paid on filing they must be paid or the claims cancelled by amendment, prior to the expiration of the time period set for response by the Patent and Trademark Office in any notice of fee deficiency. 37 CFR 1.16(d).*

Filing Fee Calculation \$ 690.00

- B. ☐ Design application
(\$310.00 — 37 CFR 1.16(f))

Filing Fee Calculation \$

- C. ☐ Plant application
(\$480.00 — 37 CFR 1.16(g))

Filing Fee Calculation \$

11. Small Entity Statement(s)

- ☐ Verified Statement(s) that this is a filing by a small entity under 37 CFR 1.9 and 1.27 is(are) attached or has been filed.

Filing Fee Calculation (50% of A, B or C above) \$

NOTE: *Any excess of the full fee paid will be refunded if a verified statement and a refund request are filed within 2 months of the date of timely payment of a full fee. 37 CFR 1.28(a).*

12. Request for International-Type Search (37 CFR 1.104(d)) (Complete, if applicable)

- ☐ Please prepare an international-type search report for this application at the time when national examination on the merits takes place.

13. Fee Payment Being Made At This Time

- ☐ Not Enclosed
- ☐ No filing fee is to be paid at this time. *(This and the surcharge required by 37 CFR 1.16(e) can be paid subsequently.)*

☒ Enclosed

☒ basic filing fee

\$ 690.00

- ☒ Recording assignment
(\$40.00; 37 CFR 1.21(h)) (See attached "COVER SHEET FOR ASSIGNMENT ACCOMPANYING NEW APPLICATION.")
- ☐ Petition fee for filing by other than all the inventors or person on behalf of the inventor where inventor refused to sign or cannot be reached.
(\$130.00; 37 CFR 1.47 and 1.17(h)) \$
- ☐ For processing an application with a specification in a non-English language.
(\$130.00; 37 CFR 1.52(d) and 1.17(k)) \$
- ☐ Processing and retention fee
(\$130.00; 37 CFR 1.53(d) and 1.21(l))
- ☐ Fee for international-type search report
(\$40.00; 37 CFR 1.21(e)). \$

NOTE: 37 CFR 1.21(l) establishes a fee for processing and retaining any application which is abandoned for failing to complete the application pursuant to 37 CFR 1.53(d) and this, as well as the changes to 37 CFR 1.53 and 1.78, indicate that in order to obtain the benefit of a prior U.S. application, either the basic filing fee must be paid or the processing and retention fee of § 1.21(l) must be paid within 1 year from notification under §53(d).

Total fees enclosed \$ 690.00

14. Method of Payment of Fees

- ☒ Check in the amount of \$ 690.00
 - ☐ Charge Account No. 12-0425 in the amount of \$
- A duplicate of this transmittal is attached.

NOTE: Fees should be itemized in such a manner that it is clear for which purpose the fees are paid. 37 CFR 1.22(b).

15. Authorization to Charge Additional Fees

WARNING: If no fees are to be paid on filing, the following items should not be completed.

WARNING: Accurately count claims, especially multiple dependent claims, to avoid unexpected high charges, if extra claim charges are authorized.

- ☒ The Commissioner is hereby authorized to charge the following additional fees by this paper and during the entire pendency of this application to Account No. 12-0425.
 - ☒ 37 CFR 1.16(a), (f) or (g) (filing fees)
 - ☐ 37 CFR 1.16(b), (c) and (d) (presentation of extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 CFR 1.16(d)), it might be best not to authorize the PTO to charge additional claim fees, except possibly when dealing with amendments after final action.

- ☐ 37 CFR 1.16(e) (surcharge for filing the basic filing fee and/or declaration on a date later than the filing date of the application)
- ☒ 37 CFR 1.17 (application processing fees)

WARNING: While 37 CFR 1.17(a), (b), (c) and (d) deal with extensions of time under §1.136(a), this authorization should be made only with the knowledge that: "Submission of the appropriate extension fee under 37 C.F.R. 1.136(a) is to no avail unless a request or petition for extension is filed." (Emphasis added). Notice of November 5, 1985 (1060 O.G. 27)


- ☒ 37 CFR 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 CFR 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 CFR 1.311(b).

NOTE: 37 CFR 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application ... prior to paying, or at the time of paying, ... issue fee". From the wording of 37 CFR 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

16. Instructions As To Overpayment

- ☒ credit Account No. 12-0425
☐ refund



Signature of Attorney

Reg. No.25,858

Tel. No. (212)708-1930

WILLIAM R. EVANS
LADAS & PARRY
26 WEST 61ST STREET
NEW YORK, NEW YORK 10023

☒ **Incorporation by reference of added pages**

(Check the following item if the application in this transmittal claims the benefit of prior U.S. application(s) (including an international application entering the U.S. stage as a continuation, divisional or C-I-P application) and complete and attach the ADDED PAGES FOR NEW APPLICATION TRANSMITTAL WHERE BENEFIT OF PRIOR U.S. APPLICATION(S) CLAIMED)

- ☐ Plus Added Pages for New Application Transmittal Where Benefit of Prior U.S. Application(s) Claimed

Number of pages added ____

- ☐ Plus Added Pages for Papers Referred to in Item 4 Above

Number of pages added ____

- ☒ Plus "Assignment Cover Letter Accompanying New Application"

Number of pages added 7

☐ **Statement Where No Further Pages Added**

(If no further pages form a part of this Transmittal, then end this Transmittal with this page and check the following item:)

- ☐ This transmittal ends with this page.

ABSTRACT

METHOD OF SEPARATION OF PALLADIUM ISOTOPES IN
ELECTROMAGNETIC SEPARATOR USING A SOURCE OF IONS

5 The invention relates to the technology of
electromagnetic separation of palladium isotopes.

10 The method provides placement of a working substance
comprised by metal palladium in a combined with gas-
discharge chamber crucible of a source of ions, heating of
the working substance up to the vapor state, ionization of
the vapors of the working substance in the gas-discharge
chamber of the source under action of electron emission
from a hot cathode, forming ionic beam by electrodes of
ion-optical system, separation and focusing the ionic beams
15 of isotopes in magnetic field, entrapping the ions by
receiving boxes, thus temperature of the crucible heating
and the gas-discharge chamber being maintained within 1500-
1700°C.

20 The method being effectively used for industrial
electromagnetic palladium isotope separation and for
obtaining isotopes: Pd-102, Pd-104, Pd-105, Pd-106, Pd-108
b Pd-110 with higher enrichment degree.

Field of the invention

The present invention relates to the technology of electromagnetic separation of isotopes of chemical elements, particularly, to electromagnetic separation of
5 palladium isotopes.

The present invention can be most effectively used for industrial electromagnetic separation of stable palladium isotopes: palladium-102, palladium-104, palladium-105,
10 palladium-106, palladium-108, palladium-110.

Background of the invention

It is known a method of separation of isotopes of chemical elements used for industrial electromagnetic separation of isotopes providing heating of a crucible with
15 working substance and a gas-discharge chamber by thermal radiation of active resistance heaters, ionization of molecules of the working substance in the gas-discharge chamber, ions being extracted therefrom and formed in an ionic beam being separated and focused by magnetic field
20 according to the mass of isotopes and entrapped by receiving boxes (N.A. Kascheev, V.A. Dergatchev. "Electromagnetic separation of isotopes and isotopic analysis". Moscow, "Energoatomizdat", 1989).

Deficiency of the stated method is in that it has low efficiency of separation of the elements of platinum-palladium group.

The method described in the work (V.P. Botchin, B.E. Gavrilov, V.S. Zolotariov. "Isotopenpraxis" Heft 6 (1971) 232) is the closest on technical essence known method of industrial separation of palladium isotope in electromagnetic separator with use of a source of ions.

The method of separation of palladium isotopes described in the cited reference consists is the following. Vapors of the working substance being formed during heating at temperature up to 1000°C in a crucible of the source in result of reaction of metal powder palladium and fluorine gas fed into the crucible through an inleakage system. The ions being formed in vapors of the working substance in the gaseous chamber of the source under action of electron emission of a hot cathode where they being drawn from and formed into ionic beam by electrodes of an ion-optical system. In process of passing through the pumped out separating chamber the ionic beams of palladium isotopes being separated in static magnetic field depending on mass of isotopes (Pd-102, Pd-104, Pd-105, Pd-106, Pd-108 and Pd-110), being focused by this field and entrapped by the relevant receiving boxes.

Drawback of the known method of palladium isotope separation in electromagnetic separator with use of a source of ions is in that the technical result is unsatisfactory because of low enrichment of entrapped isotopes due to dispersion of isotope beams on molecules of the residual gas, mainly fluorine, not reacted with metal palladium. Besides, presence of an additional parameter - pressure of fluorine - in the source crucible and in the separating chamber considerably complicates selection of focusing modes.

Other deficiencies of the known method are the following:

- necessity to use special constructional materials being corrosion-resistant to action of fluorine;
- special safety measures of protection which is a complicated problem in conditions of industrial manufacture.

The technical result of the present invention is in increasing of enrichment of separated palladium isotopes.

Summary of the invention

The stated object is achieved by that metal palladium being used as working substance. This working substance is not hygroscopic, feebly reacts with constructional materials and creates pressure vapors sufficient for

maintaining a steady arc discharge in temperature span from 1500 to 1700°C. The use of metal palladium (in form of powder, sponge, ingot etc.) as working substance allowed to obtain good focusing of ionic beams in manufacture
5 conditions and to increase enrichment of separated palladium isotopes.

An example of embodiment of the method of palladium isotope separation in electromagnetic separator with use of a source of ions is presented below for explanation of the
10 invention. One of separating chambers of the industrial electromagnetic separator "SU-20" - production of the industrial complex "Electrohimpribor", Russia - was used for the experiment. A weighed portion of spongy metal palladium was placed in a graphite crucible combined with a
15 gas-discharge chamber of the ions source. After installation of the source and a six-boxes receiver in the separating chamber of the separator the chamber was pumped-out by vacuum pumps up to the pressure $(1-2) \cdot 10^{-3}$ Pa and the source was high-voltage trained of up to voltage
20 33-35 kV.

To obtain an electron beam in the gas-discharge chamber of the source the cathode block was applied voltages ensuring: filament current - 70-80 A, voltage between filament and hot cathode - 0.8-1.0 kV, emission current -
25 0.5-0.6 A. At current of arc discharge 0.5-1.5 A and

voltage of discharge 150-350 V ionization was carried out of the vapors of working substance formed at power of crucible heater of 2500 - 4000 W.

Formed palladium ions were drawn out through a slot of
5 the gas-discharge chamber with help of an ion-optical system and were shaped in an ionic beam which under action of accelerating voltage and static magnetic field of 2600 Oersted in the chamber was separated on six ionic beams of isotopes according to masses of the ions. These beams of
10 isotopes were focused by magnetic field in a focal plane where inlets of the receiver boxes were positioned.

After accumulation the receivers were taken out from the separating chamber, isotopes were removed by the method of anodic pickling from the boxes, obtained isotopic
15 enriched solution was analyzed on enrichment and processed to the finished product.

Following isotopes were obtained in the process of experimental-industrial separation on electromagnetic separator "SU-20":

- 20 - isotope Pd-102 with enrichment 85.4-92.9 % - 3 g;
- isotope Pd-104 with enrichment 96.6-98.4 % - 34 g;
- isotope Pd-105 with enrichment 98.4-99.1 % - 65 g;
- isotope Pd-106 with enrichment 99.1-99.5 % - 82 g;
- isotope Pd-108 with enrichment 99.4-99.6 % - 86 g;
25 - isotope Pd-110 with enrichment 99.2-99.5 % - 35 g.

The table represents basic parameters of the method of palladium isotope separation according to the claimed technical solution.

The table

No.	Basic parameters	Clamed technical solution
1.	Source	without inleakage system
2.	Working substance	metal Pd
3.	Arc discharge current, A	0.5-1.5
4.	Arc discharge voltage, V	150-350
5.	Power of crucible heater, W	2500-4000
6.	Pressure in the separating chamber, Pa	$(1-2) \cdot 10^{-3}$
7.	Pd load in crucible, g	15-20
8.	Mean operating time of the source, hours	25-30
9.	Ionic current on the receiver, mA	15-25

5

The proposed method of palladium isotope separation in electromagnetic separator with use of a source of ions compared with the existing methods showed high performance in obtaining technical and economic result. Use in practice of the claimed technical solution enables to effectively use said method for industrial electromagnetic palladium

isotope separation and deriving of isotopes: Pd-102, Pd-104, Pd-105, Pd-106, Pd-108 and Pd-110 with higher level of enrichment. Elimination of the fluorination process permitted to abandon application of complex security
5 measures at work with gaseous fluorine, that, at the end, improves working conditions of the personnel.

CLAIMS

METHOD OF SEPARATION OF PALLADIUM ISOTOPES IN
ELECTROMAGNETIC SEPARATOR USING A SOURCE OF IONS

5 Method of palladium isotope separation in
electromagnetic separator with use of a source of ions
including placing of a working substance in a combined with
gas-discharge chamber graphite crucible of the source of
ions, heating of the working substance up to the vapor
10 state, ionization of the vapors of the working substance in
the gas-discharge chamber of the source under action of
electron emission from a hot cathode, forming of an ionic
beam by electrodes of ion-optical system, separation and
focusing ionic beams of isotopes in magnetic field,
15 entrapping the ions by receiving boxes, wherein metal
palladium being used as working substance and temperature
of heating of the crucible and the gas-discharge chamber
being maintained within 1500-1700°C.

COMBINED DECLARATION AND POWER OF ATTORNEY

(ORIGINAL, DESIGN, NATIONAL STAGE OF PCT, SUPPLEMENTAL, DIVISIONAL,
CONTINUATION, OR C-I-P)

As a below named inventor, I hereby declare that:

TYPE OF DECLARATION

This declaration is of the following type:

(check one applicable item below)

☒ original.
☐ design.

NOTE: *With the exception of a supplemental oath or declaration submitted in a reissue, a supplemental oath or declaration is not treated as an amendment under 37 CFR 1.312 (Amendments after allowance). M.P.E.P. Section 714.16, 7th Ed.*

☐ supplemental.

NOTE: *If the declaration is for an International Application being filed as a divisional, continuation or continuation-in-part application, do not check next item; check appropriate one of last three items.*

☐ national stage of PCT.

NOTE: *If one of the following 3 items apply, then complete and also attach ADDED PAGES FOR DIVISIONAL, CONTINUATION OR C-I-P.*

NOTE: *See 37 C.F.R. Section 1.63(d) (continued prosecution application) for use of a prior nonprovisional application declaration in the continuation or divisional application being filed on behalf of the same or fewer of the inventors named in the prior application.*

☐ divisional.
☐ continuation.

NOTE: *Where an application discloses and claims subject matter not disclosed in the prior application, or a continuation or divisional application names an inventor not named in the prior application, a continuation-in-part application must be filed under 37 C.F.R. Section 1.53(b) (application filing requirements-nonprovisional application).*

☐ continuation-in-part (C-I-P).

INVENTORSHIP IDENTIFICATION

WARNING: *If the inventors are each not the inventors of all the claims, an explanation of the facts, including the ownership of all the claims at the time the last claimed invention was made, should be submitted.*

My residence, post office address and citizenship are as stated below, next to my name. I believe that I am the original, first and sole inventor (*if only one name is listed below*) or an original, first and joint inventor (*if plural names are listed below*) of the subject matter that is claimed, and for which a patent is sought on the invention entitled:

TITLE OF INVENTION

METHOD OF SEPARATION OF PALLADIUM ISOTOPES IN ELECTROMAGNETIC
SEPARATOR USING A SOURCE OF IONS

SPECIFICATION IDENTIFICATION

The specification of which:

(complete (a), (b), or (c))

(a) ☒ is attached hereto.

NOTE: "The following combinations of information supplied in an oath or declaration filed on the application filing date with a specification are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 C.F.R. Section 1.63:

"(1) name of inventor(s), and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration on filing;

"(2) name of inventor(s), and attorney docket number which was on the specification as filed; or

"(3) name of inventor(s), and title which was on the specification as filed."

Notice of July 13, 1995 (1177 O.G. 60).

(b) ☐ was filed on _____, ☐ as Application No. _____
☐ and was amended on _____ (if applicable).

NOTE: Amendments filed after the original papers are deposited with the PTO that contain new matter are not accorded a filing date by being referred to in the declaration. Accordingly, the amendments involved are those filed with the application papers or, in the case of a supplemental declaration, are those amendments claiming matter not encompassed in the original statement of invention or claims. See 37 C.F.R. Section 1.67.

NOTE: "The following combinations of information supplied in an oath or declaration filed after the filing date are acceptable as minimums for identifying a specification and compliance with any one of the items below will be accepted as complying with the identification requirement of 37 C.F.R. Section 1.63:

(A) application number (consisting of the series code and the serial number, e.g., 08/123,456);

(B) serial number and filing date;

(C) attorney docket number which was on the specification as filed;

(D) title which was on the specification as filed and reference to an attached specification which is both attached to the oath or declaration at the time of execution and submitted with the oath or declaration; or

(E) title which was on the specification as filed and accompanied by a cover letter accurately identifying the application for which it was intended by either the application number (consisting of the series code and the serial number, e.g., 08/123,456), or serial number and filing date. Absent any statement(s) to the contrary, it will be presumed that the application filed in the PTO is the application which the inventor(s) executed by signing the oath or declaration.

M.P.E.P. Section 601.01(a), 7th ed.

- (c) ☐ was described and claimed in PCT International Application No. _____ filed on _____ and as amended under PCT Article 19 on _____ (if any).

SUPPLEMENTAL DECLARATION (37 C.F.R. Section 1.67(b))

(complete the following where a supplemental declaration is being submitted)

- ☐ I hereby declare that the subject matter of the

- ☐ attached amendment
☐ amendment filed on _____.

was part of my/our invention and was invented before the filing date of the original application, above identified, for such invention.

ACKNOWLEDGMENT OF REVIEW OF PAPERS AND DUTY OF CANDOR

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in 37, Code of Federal Regulations, Section 1.56,

(also check the following items, if desired)

- ☐ and which is material to the examination of this application, namely, information where there is a substantial likelihood that a reasonable Examiner would consider it important in deciding whether to allow the application to issue as a patent, and
- ☐ in compliance with this duty, there is attached an information disclosure statement, in accordance with 37 C.F.R. Section 1.98.

PRIORITY CLAIM (35 U.S.C. Section 119(a)-(d))

NOTE: "The claim to priority need be in no special form and may be made by the attorney or agent if the foreign application is referred to in the oath or declaration as required by Section 1.63. The claim for priority and the certified copy of the foreign application specified in 35 U.S.C. Section 119(b) must be filed in the case of an interference (Section 1.630), when necessary to overcome the date of a reference relied upon by the examiner, when specifically required by the examiner, and in all other situations, before the patent is granted. If the claim for priority or the certified copy of the foreign application is filed after the date the issue fee is paid, it must be accompanied by a petition requesting entry and by the fee set forth in Section 1.17(i). If the certified copy is not in the English language, a translation need not be filed except in the case of interference; or when necessary to overcome the date of a reference relied upon by the examiner; or when specifically required by the examiner, in which event an English language translation must be filed together with a statement that the translation of the certified copy is accurate." 37 C.F.R. Section 1.55(a).

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or of any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed.

(complete (d) or (e))

- (d) ☐ no such applications have been filed. .
(e) ☒ such applications have been filed as follows.

NOTE: Where item (c) is entered above and the International Application which designated the U.S. itself claimed priority check item (e), enter the details below and make the priority claim.

**PRIOR FOREIGN/PCT APPLICATION(S) FILED WITHIN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS APPLICATION
AND ANY PRIORITY CLAIMS UNDER 35 U.S.C. SECTION 119(a)-(d)**

COUNTRY (OR INDICATE IF PCT)	APPLICATION NUMBER	DATE OF FILING DAY, MONTH, YEAR	PRIORITY CLAIMED UNDER 35 USC 119
RU	99125195	29.11.1999	<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
			<input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO
			<input type="checkbox"/> YES <input type="checkbox"/> NO

CLAIM FOR BENEFIT OF PRIOR U.S. PROVISIONAL APPLICATION(S)
(35 U.S.C. Section 119(e))

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

PROVISIONAL APPLICATION NUMBER

_____/_____
_____/_____
_____/_____

FILING DATE

CLAIM FOR BENEFIT OF EARLIER U.S./PCT APPLICATION(S)
UNDER 35 U.S.C. SECTION 120

[] The claim for the benefit of any such applications are set forth in the attached ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR CONTINUATION-IN-PART (C-I-P) APPLICATION.

ALL FOREIGN APPLICATION(S), IF ANY, FILED MORE THAN 12 MONTHS
(6 MONTHS FOR DESIGN) PRIOR TO THIS U.S. APPLICATION

NOTE: *If the application filed more than 12 months from the filing date of this application is a PCT filing forming the basis for this application entering the United States as (1) the national stage, or (2) a continuation, divisional, or continuation-in-part, then also complete ADDED PAGES TO COMBINED DECLARATION AND POWER OF ATTORNEY FOR DIVISIONAL, CONTINUATION OR C-I-P APPLICATION for benefit of the prior U.S. or PCT application(s) under 35 U.S.C. Section 120.*

POWER OF ATTORNEY

I hereby appoint the following practitioner(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith.

(list name and registration number)

JOSEPH H. HANDELMAN, 26179

RICHARD P. BERG, 28145

JOHN RICHARDS, 31053

JULIAN H. COHEN, 20302

RICHARD J. STREIT, 25765

WILLIAM R. EVANS 25858

PETER D. GALLOWAY, 27885

JANET I. CORD, 33778

IAN C. BAILLIE, 24090

CLIFFORD J. MASS, 30086

THOMAS F. PETERSON, 24790

CYNTHIA R. MILLER, 34678

(Check the following item, if applicable)

[] I hereby appoint the practitioner(s) associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith.

[] Attached, as part of this declaration and power of attorney, is the authorization of the above-named practitioner(s) to accept and follow instructions from my representative(s).

NOTE: "Special care should be taken in continuation or divisional applications to ensure that any change of correspondence address in a prior application is reflected in the continuation or divisional application. For example, where a copy of the oath or declaration from the prior application is submitted for a continuation or divisional application filed under 37 CFR 1.53(b) and the copy of the oath or declaration from the prior application designates an old correspondence address, the Office may not recognize, in the continuation or divisional application, the change of correspondence address made during the prosecution of the prior application. Applicant is required to identify the change of correspondence address in the continuation or divisional application to ensure that communications from the Office are mailed to the current correspondence address. 37 CFR 1.63(d)(4)." Section 601.03, M.P.E.P., 7th Ed.

SEND CORRESPONDENCE TO

DIRECT TELEPHONE CALLS TO:
(Name and telephone number)

Ladas & Parry
26 West 61st Street
New York, N.Y. 10023

(complete the following if applicable)

Since this filing is a [] continuation [] divisional there is attached hereto a Change of Correspondence Address so that there will be no question as to where the PTO should direct all correspondence.

DECLARATION

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

(check proper box(es) for any of the following added page(s)
that form a part of this declaration)

☒ **Signature** for fourth and subsequent joint inventors. *Number of pages added* 9-th

* * *

☐ **Signature** by administrator(trix), executor(trix) or legal representative for deceased or incapacitated inventor. *Number of pages added* _____

* * *

☐ **Signature** for inventor who refuses to sign or cannot be reached by person authorized under 37 C.F.R. Section 1.47. *Number of pages added* _____

* * *

☐ Added page for **signature** by one joint inventor on behalf of deceased inventor(s) where legal representative cannot be appointed in time. (37 C.F.R. Section 1.47)

* * *

☐ Added pages to combined declaration and power of attorney for divisional, continuation, or continuation-in-part (C-I-P) application.

☐ Number of pages added _____

* * *

☐ Authorization of practitioner(s) to accept and follow instructions from representative.

(If no further pages form a part of this Declaration,
then end this Declaration with this page and check the following item)

☐ This declaration ends with this page.

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other document

NOTE: Each inventor must be identified by full name, including the family name, and at least one given name without abbreviation together with any other given name or initial, and by his/her residence, post office address and country of citizenship. 37 C.F.R. Section 1.63(a)(3).

NOTE: Inventors may execute separate declarations/oaths provided each declaration/oath sets forth all the inventors. Section 1.63(a)(3) requires that a declaration/oath, inter alia, identify each inventor and prohibits the execution of separate declarations/oaths which each sets forth only the name of the executing inventor. 62 Fed. Reg. 53,131, 53,142, October 10, 1997,

Full name of sole or first inventor

LEONID _____ ALEXEEVICH _____ POLYAKOV _____
(Given Name) (Middle Initial or Name) Family (Or Last Name)
Inventor's signature Леонид Алексеевич Полиakov
Date September 20, 2000 Country of Citizenship Russia
Residence Russian Federation, Lesnoi
Post Office Address Russian Federation, Lesnoi, Sverdlovskaya
oblast, ulitsa Dzerzhinskogo, 20

Full name of second joint inventor, if any

ALEXEI _____ NIKOLAEVICH _____ TATARINOV _____
(Given Name) (Middle Initial or Name) Family (Or Last Name)
Inventor's signature Алексей Николаевич Татаринov
Date September 20, 2000 Country of Citizenship Russia
Residence Russian Federation, Lesnoi
Post Office Address Russian Federation, Lesnoi, Sverdlovskaya
oblast, ulitsa Frunze, 8, kv.9

Full name of third joint inventor, if any

JURY _____ ALEXANDROVICH _____ MONASTYREV _____
(Given Name) (Middle Initial or Name) Family (Or Last Name)
Inventor's signature Юрий Александрович Моностырев
Date September 20, 2000 Country of Citizenship Russia
Residence Russian Federation, Lesnoi
Post Office Address Russian Federation, Lesnoi, Sverdlovskaya
oblast, Kommunistichesky prospekt, 39, kv.18

SIGNATURE(S)

NOTE: Carefully indicate the family (or last) name, as it should appear on the filing receipt and all other document.

NOTE: Each inventor must be identified by full name, including the family name, and at least one given name without abbreviation together with any other given name or initial, and by his/her residence, post office address and country of citizenship. 37 C.F.R. Section 1.63(a)(3).

NOTE: *Inventors may execute separate declarations/oaths provided each declaration/oath sets forth all the inventors. Section 1.63(a)(3) requires that a declaration/oath, inter alia, identify each inventor and prohibits the execution of separate declarations/oaths which each sets forth only the name of the executing inventor. 62 Fed. Reg. 53,131, 53,142, October 10, 1997.*

Full name of ~~sole or first inventor~~ forth joint inventor

SERGEI GEORGIEVICH OGORODNIKOV
(Given Name) (Middle Initial or Name) Family (Or Last Name)

Inventor's signature Сергей Георгиевич Огородников

Date September 20, 2000 Country of Citizenship Russia

Residence Russian Federation, Lesnoi

Post Office Address Russian Federation, Lesnoi, Sverdlovskaya

oblast, Jubileinaya ulitsa, 14, kv.28

Full name of second joint inventor, if any

(Given Name) (Middle Initial or Name) Family (Or Last Name)

Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____

Full name of third joint inventor, if any

(Given Name) (Middle Initial or Name) Family (Or Last Name)

Inventor's signature _____

Date _____ Country of Citizenship _____

Residence _____

Post Office Address _____